

FINAL REPORT

Limited Scope Indoor Air Quality Survey

SSMC III

for

National Oceanic & Atmospheric Administration

February 21, 2001

Interagency Agreement #: D8H01CO31200

Task: 9903

July 9, 2001

Prepared by

US Public Health Service

Division of Federal Occupational Health

Bethesda Central Office

Executive Summary

At the request of the National Oceanic & Atmospheric Administration (NOAA), Federal Occupational Health (FOH) collected indoor air quality measurements for temperature, relative humidity, carbon dioxide, carbon monoxide, and airborne fungal spores throughout Building SSMC-3, located at 1315 East-West Highway, Silver Spring, Maryland. Measurements were taken on February 21, 2001 following the methodology described below.

Temperatures throughout the building over the time period measured ranged from 67.3 –80.8 °F. Indoor relative humidity ranged from 20.1 – 38.5%

Current guidelines of the American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE) Standard 55-1995 (Thermal Environmental Conditions for Human Occupancy) recommend temperatures in the range of 68-75°F in winter season and 73-79°F summer season, along with maintaining 30 - 60% relative humidity. These ranges are based on a 10% dissatisfaction criterion.

31 of the 115 data points identified temperatures outside of the 68-75 °F range (29 measurements above 75 °F). 100 of the 115 data points identified relative humidity below 30%.

Carbon dioxide measurements provide an indicator of available “fresh air” in the space. Current standards describe indoor carbon dioxide levels below 850 ppm (AIHA), or no greater than a 700 ppm differential between outside and inside air concentrations (ASHRAE 62-1999) as generally acceptable. Carbon dioxide measurements throughout the building ranged from 454-966 ppm. Carbon dioxide measured outdoors was 444 ppm. Indoor measurements were found to be no greater than 700 ppm above outdoor measurements. 21 locations had carbon dioxide measurements exceeding 850 ppm, (6th floor 3 locations, 7th floor 4 locations, 8th floor 4 locations, 11th floor 3 locations, 12th floor 2 locations, 13th floor 5 locations).

Since there were no combustion sources in the building, carbon monoxide levels were as expected, between 0-2 ppm.

With regard to microbial sampling, indoor fungal levels were generally lower than those of outdoors and fungi detected indoors were similar to those detected outdoors, with the exceptions itemized below:

- 1) Paecilomyces was the predominant fungus found in samples 3-15-7, 3-15-2, 3-13-3, 3-10-6, 3-10-7, 3-8-4,

3-8-6, 3-6-3, FC2, and was also present in 3-6-6, 3-10-1, 3-1-3, 3-8-8.

- 2) *Penicillium* predominates samples 3-15-4, 3-12-7, and 3-11-4, and was also present in 3-10-2, 3-2-6, 3-1-1, 3-1-3, 3-6-6.
- 3) *Aspergillus* sp. predominates samples 3-13-4, 3-5-5, 3-5-7, and was also present in 3-1-3.
- 4) *Ascomycetes* predominates samples 3-14-4, 3-6-4, and was present in 3-2-6, 3-2-7, and 3-1-3.
- 5) *Aspergillus niger*, an opportunistic fungi, was predominant in sample 3-10-1.
- 6) *Nigrospora* was identified in samples FC1, FC3, and 3-1-4.
- 7) *Epicoccum* was present in sample 3-11-5.
- 8) *Acremonium* predominates sample 3-13-5.
- 9) *Scopulariopsis* was present in sample 3-11-1.
- 10) *Stachybotrys chartarum* was detected in sample 3-11-6.

Visual inspection of air handler units serving SSMC 3, performed on 3/6/01, found units to be clean, dry, and generally well maintained.

Results of this indoor air quality investigation were comparable to those of SSMC3 performed February 29-March 2, 2000. Relative humidity throughout the space is generally less than the recommended 30% which can be expected at this time of year, in this region, in a building that is not mechanically humidified. Carbon dioxide levels on floors 8 and 13, again were found to exceed 850 ppm in several locations. This year, floors 6, 7, 11, and 12, also had carbon dioxide measurements exceeding 850 ppm. *Stachybotrys chartarum* was not found in the fitness center, which in the past 12 months has undergone a thorough cleaning and shower renovation, however, it was identified in sample 3-11-6, in room 11217.

Based upon this limited scope investigation, DFOH recommends

- 1) The HVAC system on floors 6, 7, 8, 11, 12 and 13 should be checked to ensure all components are properly operating, and that fresh air is adequately distributed to the space.
- 2) Perform a thorough inspection of room 11217 to determine a potential source for *stachybotrys chartarum*.
- 3) Perform visual inspection to detect any fungal proliferation in the areas where *Aspergillus niger*, *Penicillium*, or *Aspergillus* sp. were found identified.

Introduction

At the request of the National Oceanic & Atmospheric Administration (NOAA), Federal Occupational Health (FOH) performed a limited scope indoor air quality investigation of Building SSMC-3, located at 1315 East-West Highway, Silver Spring, Maryland. The purpose of the investigation was to perform a third round of sampling for comparison with recognized industry standards and previous sampling of the space. The investigation was taken place on February 21, 2001. Evaluation methodologies and results are presented in the following report.

Evaluation Methods

Measurements of temperature, relative humidity, carbon monoxide, and carbon dioxide were taken in eight locations on each floor of the building as indicators of relative indoor air quality using a TSI Q Trak IAQ monitor, model 8550/8551. Each floor was designated into two zones on either side of the elevator lobby. Four measurements were taken in each zone in randomly selected locations on the interior and exterior of the floor. Wherever possible, locations were identical to those measured during the previous surveys. A limited number of previously sampled spaces were inaccessible, therefore adjacent locations were selected. A strategy was designed to completely sample

one side of the building from top to bottom, then the other side from bottom to top. The strategy was designed to account for time of day variations in measurements, particularly carbon dioxide measurements which often increase over the workday.

Air samples for fungal contamination were collected by a culturable method using Andersen N-6 samplers at a flow rate of 28.3 L/min. Indoor Andersen air samples were collected for 3 minutes and outdoor samples were collected for both one and three minutes. Two percent (2 %) malt extract agar (MEA) and cellulose Czapek agar (CCA) was used to recover general fungi and cellulose-loving fungi, respectively. All plates were incubated in a 25°C incubator and were examined every other day for up to 10 days to ensure the full recovery of fungi. Fungal identification was based on colony morphology, spores and conidia formation. Total fungal colonies formed on each plate were counted and recorded. Fungal levels in samples were presented as colony forming units (CFUs) per measuring unit.

Standards/Criteria

The IAQ Assessment followed general guidelines specified by the Environmental Protection Agency "Building Air Quality" Guide for Building Owners and Facility Managers, and the "Industrial Hygienist's Guide to Indoor Air Quality Investigations" published by the American Industrial Hygiene Association, Technical Committee on Indoor Environmental Quality.

ASHRAE Standard 55-1995 (Thermal Environmental Conditions for Human Occupancy) recommends temperatures in the range of 68-75°F in winter season and 73-79°F summer season. These ranges are based on a 10% dissatisfaction criterion. The recommended relative humidity range is 30 - 60%.

Carbon monoxide levels should be 0-2 parts per million (ppm) above ambient, < 9 ppm average. Carbon Dioxide levels should remain < 850 ppm ("Industrial Hygienist's Guide to Indoor Air Quality Investigations" published by the American Industrial Hygiene Association, Technical Committee on Indoor Environmental Quality). ASHRAE 62-1999 recommends indoor carbon dioxide levels no greater than 700 ppm higher than outdoor levels (outdoor levels generally range from 300-500 ppm).

There are no "standards" for building microbial burden. Complaint areas are generally compared with non-complaint areas and outside air.

Results and Conclusions

Temperature, relative humidity, carbon dioxide, and carbon monoxide measurements by location are tabulated in Attachment A.

Microbial results are tabulated in Attachment B.

Temperatures throughout the building over the time period measured ranged from 67.3 – 80.8 °F. Indoor relative humidity ranged from 20.1 – 38.5%.

Current guidelines of the American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE) Standard 55-1995 (Thermal Environmental Conditions for Human Occupancy) recommend temperatures in the range of 68-75°F in winter season and 73-79°F summer season, along with maintaining 30 - 60% relative humidity. These ranges are based on a 10% dissatisfaction criterion.

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Carbon dioxide measurements provide an indicator of available "fresh air" in the space. Current standards describe indoor carbon dioxide levels below 850 ppm (AIHA), or no greater than a 700 ppm differential between outside and inside air concentrations (ASHRAE 62-1999) as generally acceptable. Carbon dioxide measurements throughout the building ranged from 454-966 ppm. Carbon dioxide measured outdoors was 444 ppm. Indoor measurements were found to be no greater than 700 ppm above outdoor measurements. 21 locations had carbon dioxide measurements exceeding 850 ppm, (6th floor 3 locations, 7th floor 4 locations, 8th floor 4 locations, 11th floor 3 locations, 12th floor 2

locations, 13th floor 5 locations).

Since there were no combustion sources in the building, carbon monoxide levels were as expected, between 0-2 ppm.

Carbon dioxide measurements throughout the building ranged from 454 - 966 ppm. Carbon dioxide levels as a function of time of day were graphed by floor to determine if levels increase over time. Graphs are located in Attachment C. Graphs show fluctuation in levels throughout the day, but no consistent pattern.

Carbon monoxide levels throughout the facility were consistently 0-2 ppm.

Recommendations

Based upon this limited scope investigation, DFOH recommends:

- 1) The HVAC system on floors 6,7,8,11,12 and 13 should be checked to ensure all components are properly operating, and that fresh air is adequately distributed to the space.
- 2) Perform a thorough inspection of room 11217 to determine a potential source for stachybotrys chartarum.
- 3) Perform visual inspection to detect any fungal proliferation in the areas where Aspergillus niger, Penicillium, or Aspergillus sp. were found identified.

Attachment A

IAQ Measurements

Attachment B

Microbial Sample Results

Attachment C

Floor by Floor

CO2 VS. Time Graphs

USPHS DFOH ENVIRONMENTAL MICROBIOLOGY LABORATORY

PHILADELPHIA, PA

LABORATORY REPORT #NOAA-01-IAQ-1R

Client agency: National Oceanic and Atmospheric Administration, Silver Spring, MD

POIS#/task #: D8H01CO31200 / 9903

Sampling dates: 2/21/01

Dates of inoculation: 2/21/01

General location: Silver Spring, MD

Specific location: SSMC-3

Sampling technique: Air (Andersen N-6 sampler) sampling

Medium used: Malt extract agar (MEA) and cellulose Czapek agar (CCA) for fungi

Samples submitted by: J. Sobelman

Date characterization completed: 3/5/01

Air samples on MEA and CCA plates

Sample ID	Sampling Location	Air Volume (L)	Fungi on MEA @ 25° C	<i>Stachybotrys chartarum</i> *** on CCA @ 25° C
3-15-1	15 th floor, room 15876	84.9	1. <i>Paecilomyces</i> (1*) CFU/m ³ = 12	Absent
3-15-2	15 th floor, room 15603	84.9	No fungal growth	Absent
3-15-3	15 th floor, room 15639	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-15-4	15 th floor, room 15736	84.9	CFU/m ³ < 12 1. <i>Penicillium</i> (1)	Absent
3-14-1	14 th floor, room 14806	84.9	CFU/m ³ = 12 No fungal growth	Absent
3-14-2	14 th floor, room 14703	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-14-3	14 th floor, room 14619	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-14-4	14 th floor, room 14659	84.9	CFU/m ³ < 12 1. Ascomycetes (1)	Absent
3-13-1	13 th floor, room 13825	84.9	CFU/m ³ = 12 No fungal growth	Absent
3-13-2	13 th floor, room 13729	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-13-3	13 th floor, room 13602	84.9	CFU/m ³ < 12 1. <i>Paecilomyces</i> (1)	Absent
3-13-4	13 th floor, room 13661	84.9	CFU/m ³ = 12 1. <i>Aspergillus</i> sp. (1)	Absent
3-12-1	12 th floor, room 12837	84.9	CFU/m ³ = 12 No fungal growth	Absent
			CFU/m ³ < 12	

Sample ID	Sampling Location	Air Volume (L)	Fungi on MEA @ 25° C	<i>Stachybotrys chartarum</i> *** on CCA @ 25° C
3-12-2	12 th floor, room 12747 (across from 12737)	84.9	No fungal growth	Absent
3-12-3	12 th floor, room 12620	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-12-4	12 th floor, room 12660	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-11-1	11 th floor, corridor adjacent to 11722	84.9	CFU/m ³ < 12 1. <i>Cladosporium</i> (1) 2. <i>Scopulariopsis</i> (1) 3. Basidiomycetes (1)	Absent
3-11-2	11 th floor, room 11716	84.9	CFU/m ³ = 35 No fungal growth	Absent
3-11-3	11 th floor, room 11621	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-11-4	11 th floor, lobby area adjacent to room 11651	84.9	CFU/m ³ < 12 1. <i>Penicillium</i> (1)	Absent
3-10-1	10 th floor, hallway outside 10837	84.9	CFU/m ³ = 12 1. <i>Aspergillus niger</i> ** (1) 2. <i>Paecilomyces</i> (1) 3. Basidiomycetes (1)	Absent
3-10-2	10 th floor, corridor adjacent to room 10713	84.9	CFU/m ³ = 35 1. <i>Cladosporium</i> (1) 2. <i>Penicillium</i> (1) 3. Basidiomycetes (1)	Absent
3-10-3	10 th floor, room 10603	84.9	CFU/m ³ = 35 No fungal growth	Absent
3-10-4	10 th floor, room 10641	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-9-1	9 th floor, room 9823	84.9	CFU/m ³ < 12 No fungal growth	Absent
			CFU/m ³ < 12	

3-9-2	9 th floor, room 9731	84.9	1. <i>Alternaria</i> (3) 2. <i>Cladosporium</i> (2) 3. Basidiomycetes (1) CFU/m ³ = 71	Absent
3-9-3	9 th floor, room 9755	84.9	No fungal growth	Absent
3-9-4	9 th floor, room 9655	84.9	CFU/m ³ < 12 No fungal growth CFU/m ³ < 12	Absent

Sample ID	Sampling Location	Air Volume (L)	Fungi on MEA @ 25° C	<i>Stachybotrys chartarum</i> *** on CCA @ 25° C
3-8-1	8 th floor, corridor adjacent to room 8429	84.9	No fungal growth	Absent
3-8-2	8 th floor, room 8360	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-8-3	8 th floor, room 8219, occupied	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-8-4	8 th floor, room 8112, occupied	84.9	CFU/m ³ < 12 1. <i>Paecilomyces</i> (1)	Absent
3-7-1	7 th floor, room 7782	84.9	CFU/m ³ = 12 1. Basidiomycetes (1)	Absent
3-7-2	7 th floor, room 7748	84.9	CFU/m ³ = 12 No fungal growth	Absent
3-7-3	7 th floor, corridor by 7MEI	84.9	CFU/m ³ < 12 1. Basidiomycetes (1)	Absent
3-7-4	7 th floor, room 7661	84.9	CFU/m ³ = 12 No fungal growth	Absent
3-6-1	6 th floor, room 6817	84.9	CFU/m ³ < 12 1. Basidiomycetes (2)	Absent
3-6-2	6 th floor, room 6729	84.9	CFU/m ³ = 24 No fungal growth	Absent
3-6-3	6 th floor, room 6657	84.9	CFU/m ³ < 12 1. <i>Paecilomyces</i> (1)	Absent
3-6-4	6 th floor, hall near 6ME1	84.9	CFU/m ³ = 12 1. Ascomycetes (1) CFU/m ³ = 12	Absent

3-5-1	5 th floor, no number, window cube behind room 5826	84.9	No fungal growth CFU/m ³ < 12	Absent
3-5-2	5 th floor, room 5651	84.9	1. <i>Aureobasidium</i> (1) CFU/m ³ = 12	Absent
3-5-3	5 th floor, hall near 5MEI	84.9	1. Basidiomycetes (1) CFU/m ³ = 12	Absent
3-5-4	5 th floor, conference room 5836	84.9	No fungal growth	Absent
3-4-1	4 th floor, room 4846	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-4-2	4 th floor, room 4746	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-4-3	4 th floor, room 4648	84.9	CFU/m ³ < 12 1. <i>Aureobasidium</i> (1) CFU/m ³ = 12	Absent
Sample ID	Sampling Location	Air Volume (L)	Fungi on MEA @ 25° C	<i>Stachybotrys chartarum</i> *** on CCA @ 25° C
3-4-4	4 th floor, hall by 4ME1	84.9	No fungal growth	Absent
3-3-1	3 rd floor, room 3833/3834	84.9	CFU/m ³ < 12 1. Basidiomycetes (1)	Absent
3-3-2	3 rd floor, room 3712	84.9	CFU/m ³ = 12 1. Basidiomycetes (1)	Absent
3-3-3	3 rd floor, room 3646	84.9	CFU/m ³ = 12 No fungal growth	Absent
3-3-4	3 rd floor, hall outside 3ME1	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-2-1	2 nd floor, "Weather Data"	84.9	CFU/m ³ < 12 1. Basidiomycetes (1)	Absent
3-2-2	2 nd floor stacks-journals Chesapeake	84.9	CFU/m ³ = 12 No fungal growth	Absent
3-2-3	2 nd floor stacks 526.9-528.1	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-2-4	2 nd floor, hall near 2ME1	84.9	CFU/m ³ < 12 1. <i>Cladosporium</i> (4) 2. Basidiomycetes (2) CFU/m ³ = 71	Absent

3-2-5	2 nd floor, near window opposite stack	84.9	1. Basidiomycetes (3) CFU/m ³ = 35	Absent
3-2-6	2 nd floor, stacks LC classified range #31	84.9	1. <i>Aureobasidium</i> (1) 2. <i>Penicillium</i> (1) 3. Ascomycetes (1) CFU/m ³ = 35	Absent
3-2-7	2 nd floor, near window @ oversize M82.3/26-M94	84.9	1. <i>Cladosporium</i> (1) 2. Ascomycetes (1) CFU/m ³ = 24	Absent
3-2-8	2 nd floor, Hall near 2ME2	84.9	1. <i>Aureobasidium</i> (1) CFU/m ³ = 12	Absent
3-OA-3	Outside building (3 minutes)	84.9	1. <i>Cladosporium</i> (6) 2. <i>Alternaria</i> (2) 3. <i>Aspergillus fumigatus</i> ** (1) 4. Basidiomycetes (4)	Absent
3-OA-1	Outside building (1 minute)	84.9	CFU/m ³ = 153 1. <i>Cladosporium</i> (4) 2. <i>Aureobasidium</i> (3) 3. Basidiomycetes (2) CFU/m ³ = 106	Absent

Sample ID	Sampling Location	Air Volume (L)	Fungi on MEA @ 25° C	<i>Stachybotrys chartarum</i> *** on CCA @ 25° C
FC1	M2 floor, aerobic room	84.9	1. <i>Nigrospora</i> (1) 2. Basidiomycetes (2) CFU/m ³ = 35	Absent
FC2	M2 floor, weight room mirror side	84.9	1. <i>Paecilomyces</i> (1) CFU/m ³ = 12	Absent
FC3	M2 floor, weight room window side	84.9	1. <i>Nigrospora</i> (1) 2. Basidiomycetes (1) CFU/m ³ = 24	Absent
FC4	M2 floor, M2656 aerobic room	84.9	No fungal growth CFU/m ³ < 12	Absent

3-1-1	1 st floor, entrance to cafeteria	84.9	1. <i>Cladosporium</i> (1) 2. <i>Penicillium</i> (1) 3. Basidiomycetes (3) CFU/m ³ = 59	Absent
3-1-2	1 st floor, cafeteria seating area, E side	84.9	1. Basidiomycetes (2) CFU/m ³ = 24	Absent
3-1-3	1 st floor, cafeteria seating area	84.9	1. <i>Paecilomyces</i> (2) 2. <i>Aspergillus sp.</i> (1) 3. <i>Penicillium</i> (1) 4. Ascomycetes (1)	Absent
3-1-4	1 st floor, lobby security	84.9	CFU/m ³ = 59 1. <i>Cladosporium</i> (2) 2. <i>Nigrospora</i> (1) 3. Basidiomycetes (2)	Absent
3-3-5	3 rd floor, mail room near window	84.9	CFU/m ³ = 59 1. <i>Cladosporium</i> (1) 2. Basidiomycetes (2)	Absent
3-3-6	3 rd floor, corridor adjacent to room 3331	84.9	CFU/m ³ = 35 1. Basidiomycetes (1)	Absent
3-3-7	3 rd floor, room 3461	84.9	CFU/m ³ = 12 1. <i>Cladosporium</i> (1)	Absent
3-3-8	3 rd floor, hall adjacent to 3ME2	84.9	CFU/m ³ = 12 1. <i>Cladosporium</i> (1)	Absent
3-4-5	4 th floor, room 4102	84.9	CFU/m ³ = 12 No fungal growth	Absent
3-4-6	4 th floor, room 4226	84.9	CFU/m ³ < 12 No fungal growth CFU/m ³ < 12	Absent

Sample ID	Sampling Location	Air Volume (L)	Fungi on MEA @ 25° C	<i>Stachybotrys chartarum</i> *** on CCA @ 25° C
3-4-7	4 th floor, room 4342	84.9	No fungal growth	Absent
3-4-8	4 th floor, hall near 4ME2	84.9	CFU/m ³ < 12 1. <i>Aspergillus fumigatus</i> ** (1) CFU/m ³ = 12	Absent

3-5-5	5 th floor, room 5101	84.9	1. <i>Aspergillus sp.</i> (1) 2. <i>Aureobasidium</i> (1) CFU/m ³ = 24	Absent
3-5-6	5 th floor, project file room 5200	84.9	No fungal growth	Absent
3-5-7	5 th floor, room 5362	84.9	CFU/m ³ < 12 1. <i>Aspergillus sp.</i> (1)	Absent
3-5-8	5 th floor, hall near 5ME2	84.9	CFU/m ³ = 12 1. Basidiomycetes (1)	Absent
3-6-5	6 th floor, room 6128	84.9	CFU/m ³ = 12 No fungal growth	Absent
3-6-6	6 th floor, room 6226	84.9	CFU/m ³ < 12 1. <i>Paecilomyces</i> (1) 2. <i>Penicillium</i> (1) 3. Basidiomycetes (1)	Absent
3-6-7	6 th floor, room 6357	84.9	CFU/m ³ = 35 1. Basidiomycetes (1)	Absent
3-6-8	6 th floor, hall near 6ME2	84.9	CFU/m ³ = 12 1. Basidiomycetes (2)	Absent
3-7-5	7 th floor, room 7141	84.9	CFU/m ³ = 24 No fungal growth	Absent
3-7-6	7 th floor, corridor adjacent to room 7307 between files	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-7-7	7 th floor, room 7357	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-7-8	7 th floor, hall near 7ME2	84.9	CFU/m ³ < 12 1. <i>Aureobasidium</i> (1) 2. <i>Cladosporium</i> (1)	Absent
3-8-5	8 th floor, conference room 8817	84.9	CFU/m ³ = 24 1. Basidiomycetes (3)	Absent
3-8-6	8 th floor, room 8718	84.9	CFU/m ³ = 35 1. <i>Paecilomyces</i> (1)	Absent
3-8-7	8 th floor, room 8657	84.9	CFU/m ³ = 12 No fungal growth CFU/m ³ < 12	Absent

Sample ID	Sampling Location	Air Volume (L)	Fungi on MEA @ 25° C	<i>Stachybotrys chartarum</i> *** on CCA @ 25° C
3-8-8	8 th floor, hall near 8ME1	84.9	1. <i>Aureobasidium</i> (1) 2. <i>Paecilomyces</i> (1) CFU/m ³ = 24 No fungal growth	Absent
3-9-5	9 th floor, outside room 9127	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-9-6	9 th floor, room 9245	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-9-7	9 th floor, room 9356	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-9-8	9 th floor, corridor by 9ME2	84.9	CFU/m ³ < 12 1. Basidiomycetes (2)	Absent
3-10-5	10 th floor, room 10142	84.9	CFU/m ³ = 24 No fungal growth	Absent
3-10-6	10 th floor, room 10338	84.9	CFU/m ³ < 12 1. <i>Paecilomyces</i> (1)	Absent
3-10-7	10 th floor, room 10556	84.9	CFU/m ³ = 12 1. <i>Paecilomyces</i> (1)	Absent
3-10-8	10 th floor, hall near 10ME2	84.9	CFU/m ³ = 12 No fungal growth	Absent
3-11-5	11 th floor, outside room 11129	84.9	CFU/m ³ < 12 1. <i>Aspergillus fumigatus</i> ** (1) 2. <i>Epicoccum</i> (1)	Absent
3-11-6	11 th floor, room 11217	84.9	CFU/m ³ = 24 1. <i>Stachybotrys chartarum</i> *** (1) 2. Basidiomycetes (1)	Absent
3-11-7	11 th floor, room 11464	84.9	CFU/m ³ = 24 No fungal growth	Absent
3-11-8	11 th floor, hall outside 11ME2	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-12-5	12 th floor, room 12112	84.9	CFU/m ³ < 12 1. <i>Cladosporium</i> (1)	Absent
3-12-6	12 th floor, room 12338	84.9	CFU/m ³ = 12 No fungal growth	Absent
3-12-7	12 th floor, room 12358	84.9	CFU/m ³ < 12 1. <i>Penicillium</i> (1) CFU/m ³ = 12	Absent

3-12-8	12 th floor, hall outside 12ME2	84.9	No fungal growth	Absent
3-13-5	13 th floor, room 13117	84.9	CFU/m ³ < 12 1. <i>Acremonium</i> (1) CFU/m ³ = 12	Absent

Sample ID	Sampling Location	Air Volume (L)	Fungi on MEA @ 25° C	<i>Stachybotrys chartarum</i> *** on CCA @ 25° C
3-13-6	13 th floor, room 13219	84.9	No fungal growth	Absent
3-13-7	13 th floor, near windows adjacent to room 13341	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-13-8	13 th floor, hall near 13ME2	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-14-7	14 th floor, window opposite room 14453	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-14-8	14 th floor, hall near 14ME2	84.9	CFU/m ³ < 12 No fungal growth	Absent
3-15-5	15 th floor, room 15205	84.9	CFU/m ³ < 12 1. <i>Aureobasidium</i> (9)	Absent
3-15-6	15 th floor, room 15306	84.9	CFU/m ³ = 106 1. Basidiomycetes (1)	Absent
3-15-7	15 th floor, room 15448	84.9	CFU/m ³ = 12 1. <i>Paecilomyces</i> (1)	Absent
3-15-8	15 th floor, hall near I5ME2	84.9	CFU/m ³ = 12 1. Basidiomycetes (2)	Absent
SB	Shipping blank	NA [#]	CFU/m ³ = 24 No fungal growth	Absent

* Colony counts.

** Opportunistic fungi.

*** Toxigenic fungi.

Not applicable.